REMARKS

With entry of this amendment, claims 16-22, 24-25, and 27-31 are pending. Of these claims, claims 16 and 29, the only independent claims have been amended while claims 31-33 are newly presented.

Applicant hereby incorporates by reference the remarks made of record February 12, 2010 as germane to the pending claims.

While Applicant readily concedes that no new components are part of the present in a device for practicing the inventive process, the organization of the components creates efficiencies heretofore not available and that these efficiencies are entitled to patentable weight. Reconsideration of the outstanding rejections is requested on the basis that the combination of various elements piecemeal from the prior art references of record would destroy the operation of those prior art devices and as such is prohibited within the holdings of *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984). MPEP §2143.01(v): If proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification.

Applicants assert that among the bases for patentability is the elegant simplicity of the inventive processes that are neither taught nor suggested by any of the cited prior art. Each of the cited prior art references teach complex systems that are incapable of the efficiency and reliable operation of systems run by the inventive processes.

Independent claims 16 and 29 are currently amended to highlight inventive aspects of the claimed subject matter, for the sake of furthering prosecution, and without admission or relinquishment of equivalents, to more accurately recite that liquid feedstock is pumped, as

opposed to compressed since one of skill in the art would appreciate the lack of compressibility of a liquid. These claims are also amended to recite a reactor operating temperature that is incompatible with the PEM technology of Towler et al. (U.S. 6,409,974 B1) (of record). Also, these claims now recite that "within the normative control range of temperature, output of said purified hydrogen to said purified hydrogen side is a sole control over feedstock metering to said reactor".

Support for these amendments as to temperature are found in the specification as filed at page 3, line 25; and page 9, line 1. Support for pumping of liquid feedstock is supported inter alia in claim 1 as filed; and page 2, lines 18-19 and page 11, lines 11-13. Claims 16 and 29 are also amended to recite that the feedstock is compressed or boiled. These amendments are fully supported by the specification as filed at the paragraph beginning pg. 11, line 20 (e.g. metered and fed by a pump to a boiler; boiler heads the feedstock). Claims 16 and 29 are further amended to recite "within the normative control range of temperature, output of said purified hydrogen to said purified hydrogen side is a sole control over feedstock metering to said reactor". This amendment is supported by the specification at page 11. line 25- page 12, lines 1-3. No new matter is added by way of amendment. Applicant submits that claims 16 and 29, as well as all claims that depend therefrom, are allowable over the cited prior art of record.

Claim 31 is new. This claim is fully supported by the specification as filed at page 10, line 25 – page 11, line 1. No new matter is added by way of amendment.

Currently, pending claims 16-22, 24-25, and 27-30 stand rejected under 35 U.S.C. §112, second paragraph, indefiniteness. Applicant submits that this rejection is moot in view of the current amendment to claim 16.

Claims 16, 21, 22, and 24-25 stand rejected under 35 U.S.C. §103(a) over Towler et al. (US 6,409,974) in view of Fuderer (US 4,442,020), Autenrieth (US 6,423,435), and Goebel (US 2003/0093949).

Claims 17 and 18 stand rejected under 35 U.S.C. §103(a) over Towler et al. (US 6,409,974) in view of Fuderer (US 4,442,020), Autenrieth (US 6,423,435), and Goebel (US 2003/0093949), and further in view of Leftin (US 4,539,310).

Claims 19 and 20 stand rejected under 35 U.S.C. §103(a) over Towler et al. (US 6,409,974) in view of Fuderer (US 4,442,020), Autenrieth (US 6,423,435), and Goebel (US 2003/0093949), and Leftin (US 4,539,310), in further view of Loos (US 4,128,622).

Claim 27 stands rejected under 35 U.S.C. §103(a) over Towler et al. (US 6,409,974) in view of Fuderer (US 4,442,020), Autenrieth (US 6,423,435), and Goebel (US 2003/0093949), and further in view of LaPierre (US 6,423,435).

In addition, claims 28-30 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Towler et al. (US 6,409,974) in view of Fuderer (US 4,442,020), Autenrieth (US 6,423,435), and Goebel (US 2003/0093949), and further in view of Sanger (US 6,190,623) and Thompson (US 5,281,253).

Reconsideration and withdrawal of all rejections are respectfully requested at least on the basis that the claimed invention provides far superior simplicity, efficiency, and operational reliability than any process taught or suggested by the prior art. Each of the prior art references describe highly complex systems or mere individual components of a complex system. Modification of these references to support a obviousness rejection is submitted to destroy the operational function of these references and such modifications are prohibited by the holdings of In re Gordon. The recognition of the novelty of the process of the pending claims is noted with

appreciation. Applicant asserts that the elegance and simplicity of the inventive process cannot be envisioned by any of the cited prior art references, such that the processes of the pending claims are nonobvious thereover.

Given the teachings of each of the prior art references, it represents an unexpected result that providing a simple system by combining elements as per the pending claims would efficiently and economically produce hydrogen. Evidence of unobvious or unexpected advantageous properties, such as superiority in a property the claimed compound shares with the prior art, can rebut *prima facie* obviousness. (See e.g. *In re Chupp*, 816 F.2d 643, 646, 2 USPQ2d 1437, 1439 (Fed. Cir. 1987)). The claimed processes represent patentably elegant and simple processes that are unexpectedly superior and could not be envisioned from analysis of any of the cited prior art.

Remarks Directed to Rejection of Claims 16, 21, 22, and 24-25 under 35 U.S.C. §103(a) over Towler et al. in view of Fuderer, Autenrieth, and Goebel

The basis for the rejection is found in Paper no. 20101203, pages 3-6 and will not be restated for the sake of brevity. With the above amendments to the claims to recite a temperature range well in excess of the requirement that the temperature in the low temperature reaction zone of Towler be kept below 70 degrees Celsius to prevent damage to the polymer member PEM (col. 3, lines 40-47). It is submitted that one of ordinary skill in the art knows and Towler teaches away from the claim recited temperature range of 350- 900 degrees Celsius as being destructive of a polymeric membrane reactor per Towler et al. The courts have long cautioned against picking and choosing among the teachings of a reference and if Towler et al. is cited against the pending process claims, the process limitations that are part of the component teachings of

Towler et al. must be consider and these process limitation of Towler et al. as to a temperature range outside that the of the present invention are respectfully submitted to constitute a teaching away.

> The [prior art] reference must clearly and unequivocally disclose the claimed [invention] or direct those skilled in the art to the [invention] without any need for picking, choosing, and combining various disclosures not directly related to each other by the teachings of the cited reference.
> *In re Arkley*, 455 F.2d 586, 587 (CCPA 1972).

Goebel and Fuderer are newly added to the present rejection relative to the withdrawn rejection. As such Applicant hereby incorporates by reference the remarks of record with respect to Autenrieth and the failures of that reference to bolster the deficiencies of Towler et al. that were accepted as evidenced by the withdrawal of that rejection and the new reliance on Goebel et al. and Fuderer. Both of these newly added secondary references are noted to involve complex piping schemes with numerous compressors urging gaseous materials into the system (e.g. Fig. 1, #28. #34. and #68). It is also of note that Goebel et al. lacks a teaching as to a sensor along line #58 that communicates CO depleted - hydrogen rich gas to the fuel cell stack (#22) and as such cannot provide sole control over feedstock metering to said reactor based on the purified hydrogen production, as required by claim 16 and indeed to do so would destroy the operational complexity Goebel et al. teaches is critical to their invention (e.g. See explanation of Figure 1 operation [0025]-[0052]. This is submitted to be equally true of the Autenrieth et al. Fuderer is submitted to be wholly silent as to this mode of operational control. To the extent that other references of record teach various modes of controlling feedstock that would be relevant to the claim recitation of [sole control over feedstock metering to the reactor being based on the purified hydrogen production], Applicant submits that modification of the control systems of Towler et al., Goebel et al., Fuderer et al., or Autenrieth et al.; each alone or in combination

would destroy the purposeful complexity of operation of these prior art references and that such a combination would be contrary to the holdings of *In re Gordon.*

As such claim 16 is submitted to be non-obvious and allowable over the prior art of record. Pending claims 21, 22, and 24-25 are submitted to encompass patentable subject matter idstinct from dependency from claim 16. Applicant reserves tehe right to make remarks of record as to the allowable subject matter of these claims in due course of prosecution in the event that this rejection is maintained.

. In light of the above remarks, reconsideration and withdrawal of the rejections as to claims 16, 21, 22, and 24-25 are respectfully requested.

Remarks Directed to Rejection of Claims 17-20 and 27-30 under 35 U.S.C. §103(a) over Towler et al. in view of Fuderer, Autenrieth, Goebel and in further view of additional references

The 17-20, 27, and 28, each of which depend from claim 16, are allowable as dependent from claim 16, now believed to be in allowable form and directed to patentable subject matter. None of the tertiary prior art references of Leftin, Loos, LaPierre, Sanger or Thompson (all of record) are able to be combined with the references of the base prior art rejection without destroying the intended function of the prior systems as detailed above with respect to claim 16. To remove the complexity of the prior art systems is submitted to be contrary to the teaching of these references on the basis that industrial invention always strives to reduce cost of production and efficiency of production. The complex control and compressed gas inputs of the prior art systesm must therefore be considered by one of skill in the art as being required, else if complex and costly components were not needed they would not have been taught to be essential for the inventions of Towler et al. Fuderer et al., Autenrieth et al., and Goebel et al.

In addition, claims 29 and 30 and new claim 31 are submitted to be allowable also based on the above remarks. With respect to new claim 31 there is simply no teaching present in the prior art of record as to a fan being the component using to urge combustion supporting gas (e.g. air) to the burner and instead the prior art uniformly teaches costly and complex compressors instead.

In light of the above remarks, reconsideration and withdrawal of the rejections as to claims 16-22, 24, 25, and 27-31 are respectfully requested. Further, allowance of new claim 31 is similarly requested.

Summary

With entry of this amendment, claims 16-22, 24, 25, 27, and 28-31 are pending. Reconsideration and withdrawal of the rejections as to all claims and passing of this application to allowance are requested.

The Director is hereby authorized to charge any deficiency in the fees filed, asserted to be filed or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Deposit Account No. 50-5464.

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Respectfully submitted,

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